ONTARIO RECREATION PILOT SURVEY

A pilot survey was undertaken to provide the sampling and questionnaire design guidelines for the main Ontario Recreation Survey. Carrying out a pilot survey follows recommendations found in the social survey literature. This literature strongly endorses undertaking a pilot survey when:

1) The proposed survey is large scale and costly
2) The information gained is to be used for making important and long range decisions
3) The subject area being studied is poorly understood
4) No similar previous survey has been completed in the study area.

This chapter documents the many stages involved in undertaking the Pilot Survey. Major findings and, in particular, their subsequent import on the design of the ORS questionnaire, are described in detail.

April 1975

The design of the Ontario Recreation Survey Pilot Study was preceded by three background review phases.

I. Review of Present Government Programs

The first phase included a comprehensive review of the recreation, tourism and travel objectives of each branch of the five-member ministries. In sessions with the TORPS survey team, branches precisely defined their present programs, indicated how each program was sub-divided and outlined the types of management information they were presently collecting. Information needed to make key decisions was singled out for particular attention. Details about how data ~~was~~ were being collected, definitions, and categories used for classifying data during analyses were specified. The branches evaluated the adequacy of their present ~~data about~~ user information ~~for their services~~, identified gaps in this user information and expressed their degree of confidence in making demand projections. Next, the branches outlined issues facing their programs and indicated which types of new programs they could be providing in the near future. Types of participation and demand information needed to determine the benefits and costs of possible new programs were outlined in as much detail as possible.

II. Review of Other Major Recreation and Tourism Surveys

The second review phase included a detailed study of recently completed major recreation and tourism surveys. The surveys reviewed included:

1) The 1971 Canadian Travel Survey
2) The 1961 American ORRC Survey
3) The 1967-1969 Canadian Outdoor Recreation Demand Study Big 8-M Household Surveys and
4) The 1968 Birmingham Recreation Survey.

Surveys were reviewed in terms of a) content, b) definitions and response categories used for specifying socio-economic variables, c) sample design, d) major sources of variance in estimates, (e) cost and (f) any major problems encountered during the survey.

III. Data Requirements for Demand Models

Closely associated with review phases I and II was a review of the data requirements of the more commonly used demand projection techniques. Applications of survey data by various jurisdictions were reviewed. Special attention was given to the modelling techniques used in the preparation of Statewide Recreation Plans of California, New York and Michigan.

The data requirements of the TORPS Prototype Model were evaluated at this stage and those data requirements which could be met through a household survey were identified. Finally a general review of the more highly regarded econometric projection techniques was undertaken. Here the work of (1) Meuller and Guerin and (2) Cichetti, Davidson and Seneca was reviewed in depth.

Design of the Pilot Survey

Once the background review was completed, the development of the pilot questionnaire began. A list of data requirements was developed by combining the results from sessions with the various branches, the data requirements of the TORPS Prototype Model and the requirements of the various demand projection techniques. Next a common set of activity and trip definitions was developed. An initial draft questionnaire was then constructed. This initial draft excluded only those detailed data requirements which would clearly require a larger sample than the budget allowed or else could be more efficiently collected from user surveys at the recreation site. The draft of the questionnaire was internally reviewed by the TORPS Technical Sub-Committee, revised, and sent, along with definitions, to the various branches for comment.

When comments were received from the branches, an attempt was made to incorporate as many ~~comments~~ as possible into the next draft questionnaire and, ~~when~~ where necessary, to resolve conflicts in definition, etc.

The resulting third draft questionnaire was again sent out to all the Branches. In addition it was distributed for critical comment to a number of recreation professionals outside the Provincial Government. Again comments received were reviewed and as many conflicts as possible were resolved. The resulting fourth draft questionnaire was used as a basis of ~~(contract tendering)~~ tendering a contract for the Pilot Survey.

Sample Design and Selection of Interview Areas

A major objective of the Pilot Survey was to test the draft questionnaire in as many different circumstances as possible. It was believed that such a strategy would best indicate the degree of acceptability of particular questions and provide the opportunity for isolating and correcting interviewee misunderstanding due to imprecise definitions and/or overly complex questions. The degree of difficulty associated with recalling details of travel and recreation could also be investigated. Moreover, carrying out the survey in different geographical locations and with individuals of different socio-economic backgrounds would allow more precise estimation of costs, interview length and logistical problems associated with a province-wide survey.

Another objective of the Pilot Survey was to determine which variables were most highly associated with recreational participation in Ontario. From an analysis of real data it would be possible to calculate variances that roughly could be expected for particular estimates. The corresponding sample size required to make these estimates at a given confidence level could then be established.

The Pilot Survey sample was designed to meet the above objectives within the constraints: (a) a limited sample size - approximately 1000 questionnaires, (b) a cost constraint which required that areal units be clustered, and (c) a lack of up-to-date information on which to base sample selection.

The selection of a sample design went through four stages of refinement:

1) Selection of criteria (variables) on which the sample was to be based

2) Selection of a limited number of counties which in combination best met these criteria

3) Selection of areal clusters within these chosen counties
4) Selection of households and respondents within clusters.

Considering the results of roughly similar other surveys, an attempt was made to select a sample that would be as heterogeneous as possible with respect to the variables and cross-variable combinations of:

(a) age
(b) sex
(c) income
(d) education
(e) occupation
(f) industrial classification of jobs
(g) quality, quantity and variety of recreational and cultural opportunities
(h) city size
(i) urban/rural mix
(j) ethnic composition
(k) geographic location.

In addition, it was felt that the following ~~population types~~ should also be included:

(a) border area
(b) commuter zone
(c) high-rise apartment complex
(d) a town undergoing rapid urban expansion

Using the above variables as criteria, a three stage elimination process took place. The number of counties was first reduced to twenty nine, then to eleven, and finally to six counties. Six was found to be the fewest number of counties that could be considered without compromising any of the criteria believed important to the sample. The recommended list of counties and the characteristics for which they were chosen is found in figure I.

Figure I

COUNTY	CHARACTERISTICS
Dundas	Rural farm, low income, example for eastern Ontario - low cultural opportunity.
Muskoka	- high recreational, low cultural opportunity - example of area of intense commercial recreation activity - large % rural non-farm population - low income
Lambton	- example of border county - high English speaking population - has city in 50,000-100,000 range - medium to high income, mix of farm & urban - high secondary manufacturing, Western Ontario example.
Waterloo	- Good mix of city size - high income rural area - high % light manufacturing - high % craftsman and process workers - area of high education attainment - university area.
Sudbury	- high % primary industry, good mix of income groups; low income urban places; high French speaking population; high in outdoor recreational and cultural opportunities; Northern Ontario example.
York and Metro Toronto	- very high urbanization - commuting zones - good mix of income, education, occupation - industrial and ethnic characteristics - example of rural area with high real estate values - fringe communities of Toronto experiencing very rapid growth and transformation of way of life - high cultural, low outdoor recreational opportunities.

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6 6b

Figure II ~~(a)~~

Change

YORK (including Metro Toronto)	SAMPLE SIZE	CHARACTERISTIC
1) Richmond Hill	40	. town undergoing rapid expansion; on fringe of metro.
2) E. Gwillimbury Twp.	40	. rural area with high real estate values.
3) Selected Census ~~Census Tracts~~ Tracts	40	. a commuter zone . middle income & education . managerial, professional technical occupations.
4) Selected Census ~~Census Tracts~~ Tracts	40	. high income, large % managerial; . high education
5) Selected Census Tracts, [redacted]	40	. very poor English speaking area . low education, . labouring occupations.
6) Selected Census tracts [redacted], [redacted]	40	. Ethnic melting pot . great range of income, education, occupation.
7) Selected Census Tracts	40	. high rise apartment complex

WATERLOO		
1) Kitchener Waterloo Selected Census tracts [redacted], [redacted]	80	. high education - student population . German speaking . light manufacturing . large % craftsmen & process related workers. . city size in 100,000-150000 range . medium to high income
2) Preston	40	. city in 10,000-25,000 range . light manufacturing . medium to low education and income
3) Galt	40	. city in 25,000-50,000 range . light manufacturing
4) North Blenheim Twp. west of Hwy.24A	40	. high income rural farm
5) Ayr	30	. retired farmers community salaries . low income from wages & ~~income~~

[illegible]

Figure II(b)

CLUSTER	SAMPLE SIZE	CHARACTERISTICS
Sudbury		
1) Census tracts selected ~~11, 13~~	40	. high French speaking population . low income
2) Copper Cliff	40	. high average income . mining employment high %
3) Espanola	40	. primary industry including mining, wood products
4) Noelville/Chapleau	40	. small, poor urban centres engaged in farming & lumbering respectively
Muskoka		
1) Bracebridge/Huntsville/ Gravenhurst	40	. high % employed in service & recreation occupations . small towns orientated to tourism & outdoor recreation industry
2) Point Carling/Bala	40	small village, heavily orientated to tourism & outdoor recreation
3) All townships excluding Watt	40	. high non-farm rural population
Lambton		
1) Sarnia/Pt.Edward	60	. medium high income . on border
2) All townships exlcuding those adjacent to (1)	40	. rural farm, medium high income.
3) Wyoming/Watford	30	. small rural service community . medium low income.
Dundas		
1) Chesterville	40	. village, eastern Ontario
2) all townships	40	. rural farm poor

Once the counties were selected, an attempt was made to define more precisely clusters within each county that best represented the characteristic for which the county was originally chosen. Census tract information was used for this purpose whenever such dissegregated information was available. After appropriate areas were demarcated, particular 1971 census enumeration areas were randomly selected. Five initial households were selected within each enumeration area by using a random start, systematic walk pattern. All persons twelve years of age or older were listed from selected households and one person was randomly selected for interviewing in each household. Up to three contacts per household (one preliminary contact plus two call backs) were required before substitution of another household within the enumeration area was allowed. When substitution of households occurred, it followed an extension of the original systematic walk pattern. No substitution of respondents within households was allowed.

Tests

Although the entire pilot survey was an experiment, five parts of the pilot survey were singled out for special attention.

Free Time Yesterday

Two different formats for asking about available free time were rotated throughout the sample of 1000 interviews. The first ~~format~~ asked about activities done and the total free time spent in each of the morning, afternoon and evening time periods. The second format ~~also~~ had respondents specifically list the free time activities undertaken in ~~each of the respective time periods~~ spent doing them during the entire day and the time and respondents estimate the total amount of time spent in each of seven predetermined categories of free-time activities

FREE-TIME - ALTERNATIVE 1 7b Figure 3

~~SECTION 2~~

1. I'D LIKE YOU TO RECALL THOSE THINGS YOU CHOSE TO DO IN YOUR FREE TIME YESTERDAY / SATURDAY - THINGS LIKE VISITING FRIENDS, DOING HOBBIES, GOING TO THE MOVIES, WATCHING TV, READING THE PAPER, RELAXING - AND MANY OTHERS.

NOW THINKING ABOUT YESTERDAY (SATURDAY) MORNING FROM THE TIME YOU GOT UP UNTIL LUNCH TIME, DID YOU HAVE ANY FREE TIME? 15

IF "YES" ( )-1 CONTINUE IF "NO" ( )-2 GO TO NEXT PARAGRAPH (07)

WHAT DID YOU DO WITH YOUR FREE TIME? HOW LONG DID YOU SPEND?

(RECORD EXACTLY IN DETAIL) _____ (8-22)

TIME SPENT _____ (23-25)

NOW WHAT ABOUT YESTERDAY / SATURDAY AFTERNOON - THAT IS, FROM LUNCH UNTIL DINNER OR SUPPER TIME. DID YOU HAVE ANY FREE TIME?

IF "YES" ( )-1 CONTINUE IF "NO" ( )-2 GO TO NEXT PARAGRAPH (26)

WHAT DID YOU DO WITH YOUR FREE TIME? HOW LONG DID YOU SPEND?

(RECORD EXACTLY IN DETAIL) _____ (27-41)

TIME SPENT _____ (42-44)

WHAT ABOUT YESTERDAY / SATURDAY EVENING AFTER DINNER UNTIL YOU WENT TO BED? DID YOU HAVE ANY FREE TIME?

IF "YES" ( )-1 CONTINUE IF "NO" ( )-2 GO TO NEXT PARAGRAPH (45)

WHAT DID YOU DO WITH YOUR FREE TIME? HOW LONG DID YOU SPEND?

(RECORD EXACTLY IN DETAIL) _____ (46-60)

TIME SPENT _____ (61-63)

FREE TIME - ALTERNATIVE 2

~~SECTION 2~~

1. HERE ARE SOME OTHER ACTIVITIES THAT PEOPLE OFTEN DO IN THEIR FREE TIME. [illegible] YESTERDAY/[illegible] SAY ONLY, PLEASE ESTIMATE HOW MANY HOURS YOU SPENT IN ALL THINGS LISTED IN EACH OF THE SEVEN CATEGORIES.

(HAND RESPONDENT CARDS "1" TO "7", ONE AT A TIME. ATTEMPT TO GET RESPONDENT TO RECALL TIME SPENT IN EACH CATEGORY TO THE NEAREST HALF HOUR. IF LESS THAN ONE QUARTER HOUR SPENT IN ANY CATEGORY, DO NOT RECORD)

i) CATEGORY 1 (CARD "1") _____ HOURS (19-21) OTHER (RECORD) _____

ii) CATEGORY 2 (CARD "2") _____ HOURS (22-24) OTHER (RECORD) _____

iii) CATEGORY 3 (CARD "3") _____ HOURS (25-27) JURISDICTION _____ (28)

(NOW HAND RESPONDENT CARD "A" AND ASK:)

WHERE WAS MOST OF YOUR TIME SPENT "RELAXING OUT OF DOORS". CARD "A" WILL ASSIST YOU IN YOUR ANSWER. (RECORD ABOVE BY JURISDICTION)

iv) CATEGORY 4 (CARD "4") _____ HOURS (29-31) OTHER (RECORD) _____

v) CATEGORY 5 (CARD "5") _____ HOURS (32-34) OTHER (RECORD) _____

vi) CATEGORY 6 (CARD "6") _____ HOURS (35-37) OTHER (RECORD) _____

vii) CATEGORY 7 (CARD "7") _____ HOURS (38-40) OTHER (RECORD) _____

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~~Performance~~ PREFERENCE

The review of the TORPS Prototype Model by the TORPS Technical Sub-Committee and by Drs. Bishop and Witt identified the Preference Module as being both critically important and difficult to provide with meaningful input data. The Module's importance related to its direct input to demand estimates and its indirect impact upon activity substitution. The problem with obtaining meaningful input data focused upon getting stated preference which had a high probability of being translated in actual participation, and not merely reflecting wishes or dreams. A review of requirements for preference data identified a need to:

1) determine which activities people desired to participate in, or participate in more frequently
2) determine the amount of desired extra participation
3) isolate the perceived constraints to additional participation
4) rank the importance of these various constraints
5) determine which activities would get less participation if substitution into more desired activities occurred
6) attempt to separate those activities which people would rather do on a weekend than on a vacation trip
7) determine preferred activity-accommodation packages and reasons for corresponding ~~accommodation choices~~ choice of accommodation type

In order to test how these requirements could be best met, three alternative ~~activity preference sections~~ sections on activity preference were developed. Each alternative had particular advantages or disadvantages in meeting one or more of the above requirements. ~~Alternative series of questions were rotated so that~~ one-third of all respondents was given each ~~alternative~~ of the three sections.

FIGURE 4

IN ORDER TO DO FUTURE PLANNING THE GOVERNMENT WOULD LIKE TO KNOW WHAT PREVENTS PEOPLE FROM PARTICIPATING OR PARTICIPATING MORE IN ACTIVITIES THEY LIKE DOING.

N.B. ROTATE ALTERNATIVES 1, 2, 3 FROM INTERVIEW TO INTERVIEW ASKING ONLY ONE SET OF PREFERENCE QUESTIONS PER INTERVIEW

3:5

PREFERENCE (ALTERNATIVE 1)

58. ARE THERE ANY RECREATIONAL OR OTHER FREE TIME ACTIVITIES THAT YOU WOULD LIKE TO DO OR DO MORE OFTEN?

YES ( )-1 CONTINUE NO ( )-2 GO TO QU. 72 (07)

59. IN ORDER OF PREFERENCE WHICH ONES ARE THEY?
(RECORD BELOW IN ORDER THE FIRST FIVE ACTIVITIES)
(FOR EACH ACTIVITY REPEAT THE FOLLOWING QUESTIONS)
(N.B. USE "MORE" IF ACTIVITY PARTICIPATED IN ALREADY)

60. IN ORDER OF IMPORTANCE TO YOU WHICH OF THE FOLLOWING REASONS BEST EXPLAIN WHY YOU DON'T PARTICIPATE (MORE) IN THIS ACTIVITY? HERE IS A CARD TO ASSIST YOU. (HAND RESPONDENT CARD "B")

(ALLOW RESPONDENT TO GIVE UP TO THREE REASONS. RECORD IN EXACT ORDER GIVEN)

61. HOW MANY (MORE) DAYS A YEAR WOULD YOU LIKE TO PARTICIPATE IN THIS ACTIVITY?

62. IF REASON ONE (I.E., FIRST REASON GIVEN) WAS NOT PRESENT, HOW MANY (MORE) DAYS PER YEAR WOULD YOU PARTICIPATE?

63. WHICH ONE OF THE RECREATIONAL AND/OR OTHER FREE TIME ACTIVITIES YOU NOW DO WOULD YOU GIVE UP SO YOU COULD (REPEAT PREFERRED ACTIVITIES IN QU. 59)

	Qu. 59 Activity Preferred	Qu. 60 Reasons for Lack of Participation First	Second	Third	Qu. 61 No. of "More Days" Participation	Qu. 62 No. "More Days" after Reason One	Qu. 63 Activity Given Up
1.	(11-13)	(14)	(15)	(16)	(17-18)	(19-20)	(21-23)
2.	(27-29)	(30)	(31)	(32)	(33-34)	(35-36)	(37-39)
3.	(43-45)	(46)	(47)	(48)	(49-50)	(51-52)	(53-55)
4.	(59-61)	(62)	(63)	(64)	(65-66)	(67-68)	(69-71)
5.	(10-12)	(13)	(14)	(15)	(16-17)	(18-19)	(20-22)

* PUNCH 1 IF ALTERNATIVE 1 USED (80) ON CARD 35

3:6

PREFERENCE (ALTERNATIVE 2)

64. ARE THERE ANY RECREATIONAL ACTIVITIES OR OTHER FREE TIME ACTIVITIES THAT YOU WOULD LIKE TO DO OR DO MORE OFTEN?

YES ( )-1 CONTINUE NO ( )-2 GO TO QU. 72 (07)

3:5

65. IN ORDER OF PREFERENCE WHICH ONES ARE THEY?
(RECORD BELOW IN ORDER THE FIRST FIVE ACTIVITIES)
(FOR EACH ACTIVITY REPEAT THE FOLLOWING QUESTIONS)

66. IN ORDER OF IMPORTANCE TO YOU WHICH OF THE FOLLOWING REASONS BEST EXPLAIN WHY YOU DON'T PARTICIPATE (MORE) IN THIS ACTIVITY? HERE IS A CARD TO ASSIST YOU. (HAND RESPONDENT CARD "B". RECORD BELOW)
(ALLOW RESPONDENT TO GIVE UP TO 3 REASONS - RECORD IN EXACT ORDER GIVEN)

67. IF YOU WERE GIVEN 100 CHANCES TO PARTICIPATE IN THESE ACTIVITIES (NAMED ABOVE) HOW WOULD YOU DIVIDE THESE 100 CHANCES AMONG THE ACTIVITIES?

	Qu. 65 Activity Preferred	Qu. 66 Reason One for Non-Participation	Qu. 66 Reason Two for Non-Participation	Qu. 66 Reason Three for Non-Participation	Qu. 67 No. of Chances Allocated
1.	(11-13)	(14)	(15)	(16)	(17-18)
2.	(27-29)	(30)	(31)	(32)	(33-34)
3.	(43-45)	(46)	(47)	(48)	(49-50)
4.	(59-61)	(62)	(63)	(64)	(65-66)
5.	(10-12)	(13)	(14)	(15)	(16-17)

* PUNCH 2 IF ALTERNATIVE 2 USED (80) ON CARD 35

3:6

PREFERENCE (ALTERNATIVE 3)

68. ARE THERE ANY RECREATIONAL AND FREE TIME ACTIVITIES THAT YOU NOW DO ONLY BECAUSE YOU CAN'T PARTICIPATE IN OTHERS THAT YOU WOULD PREFER TO DO?

YES ( )-1 CONTINUE NO ( )-2 GO TO QU. 72 (07)

69. WHAT ARE THESE LESS PREFERRED ACTIVITIES? 3|5|

(ALLOW RESPONDENT TO GIVE UP TO FIVE ACTIVITIES)

70. WHICH RECREATIONAL AND FREE TIME ACTIVITIES WOULD YOU PREFER TO DO, OR DO MORE OFTEN?

71. IN ORDER OF IMPORTANCE TO YOU WHICH OF THE FOLLOWING REASONS BEST EXPLAIN WHY YOU DON'T PARTICIPATE (MORE) IN THIS ACTIVITY? (HAND RESPONDENT CARD "B")

(ALLOW RESPONDENT TO GIVE UP TO THREE REASONS. RECORD IN EXACT ORDER GIVEN)

	Qu. 69 Less Preferred Activities	Qu. 70 Preferred Activities	Qu. 71 Reasons for Lack of Participation 1st	2nd	3rd
1.	(08-10)	(11-13)	(14)	(15)	(16)
2.	(24-26)	(27-29)	(30)	(31)	(32)
3.	(40-42)	(43-45)	(46)	(47)	(48)
4.	(56-58)	(59-61)	(62)	(63)	(64)
5.	(07-09)	(10-12)	(13)	(14)	(15)

* PUNCH 3 IF ALTERNATIVE 3 USED (80) ON CARD 35

3|6|

Weekend and Vacation Trips

The pilot was designed to collect detailed information about the last weekend and/or vacation trip that the respondent had taken, given that a trip had been taken during the past three months. Trips were divided into segments for interviewing purposes. A separate segment was defined as occurring when either the overnight destination and/or accommodation type changed. Each segment included questions about origin, destination, travel mode, accommodation type and number of nights stayed at the destination. Additional information was collected when the accommodation used was either a campsite or a cottage. The number of days ~~spent doing~~ during which participation in each recreational activity ~~while on the trip occurred~~ was asked, as well as ~~how many of~~ the number of these days ~~of~~ during which participation occurred out of province. The segment by segment type of format used was compatible with the requirements of a standard traffic-engineering data processing package. The ~~real~~ test ~~aspect~~ of this section was whether or not respondents would and could easily give the detailed information asked.

Recall

One of the most controversial aspects of social survey research is the ability of respondents to accurately recall detailed information. From an actual interviewing point of view, a good principle is not to push the respondent to give a more detailed estimate than he or she ~~believes he is~~ capable of giving. When pushed too far for details, respondents often become tense and less willing to complete the remainder of the interview. Moreover, the analyst is faced with data which appears

FIGURE 5

23.

DETAILED TRIP RECORD

16. WHERE DID THE FIRST (NEXT) DAY'S TRIP BEGIN? (ORIGIN)

17. WHERE DID YOU STAY THAT NIGHT? (DESTINATION)

18. WHAT TYPE OF TRANSPORTATION WAS USED?

19. WHAT TYPE OF ACCOMMODATION WAS USED?

(IF CAMPSITE, ASK QU. 20, 21, 22)
(OF COTTAGE, CHALET, CABIN, HOBBY FARM, ASK QU. 23)

20. WHAT TYPE OF AREA WAS IT? HERE IS A CARD TO ASSIST YOU. (HAND RESPONDENT CARD "A") (JURISDICTION)

21. DID YOU SLEEP IN A -

TENT	1	TRAVEL TRAILER	4
TENT TRAILER	2	OTHER (RECORD) _____	5
PICKUP CAMPER (CAMPERBACK) VAN	3		

22. WAS CAMPSITE MAINLY USED AS: (READ LIST)

- A CENTRAL PLACE FROM WHICH YOU DID OTHER THINGS ASSOCIATED WITH THE CAMPSITE AND AREA AROUND THE CAMPSITE 1

OR

- A MEANS OF OVERNIGHT ACCOMMODATION WHILE TRAVELLING 2

(IF COTTAGE, CHALET, CABIN OR HOBBY FARM, ASK:)

23. WAS IT:

OWNED	1	RENTED	3
LEASED	2	OTHER (RECORD) _____	4

24. HOW MANY NIGHTS DID YOU STAY AT THAT LOCATION USING THAT TYPE OF ACCOMMODATION?

(REPEAT QU. 16 TO QU. 24 UNTIL ENTIRE TRIP IS ACCOUNTED FOR)

		Qu. 16		Qu. 17		Qu. 18		Qu. 19	Qu. 20	Qu. 21	Qu. 22	Qu. 23	Qu. 24
	TRIP SEGMENT	ORIGIN	ORIGIN CODE (DO NOT USE)	DESTINATION (WRITE IN NAME)	DESTINATION CODE (DO NOT USE)	TRANSPORTATION	TRANSPORTATION CODE	ACCOMMODATION TYPE	JURISDICTION	CAMPING EQUIPMENT USED	PURPOSE OF CAMPING	OWNERSHIP OF TEMPORARY RESIDENCE	NO. NIGHTS SPENT
CARD 16 (CONTD) 1	30		31 36		37 42		43	44-45	46	47	48	49	50 51
2	52		53 58		59 64		65	66-67	68	69	70	71	72 73
CARD 17 1 7 3	07		08 13		14 19		20	21 22	23	24	25	26	27 28
4	29		30 35		36 41		42	43 44	45	46	47	48	49 50
5	51		52 57		56 63		64	65 66	67	68	69	70	71 72
CARD 18 6	07		08 13		14 19		20	21 22	23	24	25	26	27 28

more precise than is warranted. In order to minimize these two problems, the pilot survey provided the respondent the opportunity of giving estimates of the frequency of participation for activities within ranges. The test was to determine what per cent of interviewees chose to respond within ranges and to compare averages from the mid-points of these upper and lower ranges against averages from respondents giving ~~only~~ a single specific responses.

The Drop-Off Questionnaire

In the Birmingham Recreation Survey one respondent was randomly selected within each household and asked a detailed set of questions. All other adult members of the selected household were given less detailed mail-back questionnaires. A high response rate from the mail-back questionnaire resulted in a substantially increased sample size for particular estimates at little additional cost. Consequently a similar approach was adopted for the Ontario Recreation Pilot Survey.

Survey Administration

The final questionnaire design, printing of survey materials, field interviewing and supervision, coding and editing were carried out by a private market research firm. The firm, in conjunction with the TORPS survey team began by reviewing the survey documents. Documents were then modified to a simpler and more conversational language and put into a format which could be ~~more~~ easily administered

by interviewers. A pretest of fifty interviews was undertaken in Waterloo and Toronto. Briefing and debriefing of pretest interviewers was jointly done by management of the consulting firm and the TORPS survey team. The most significant finding from the pretest was that interviews became bogged down when respondents were reading cards with response categories. Interviewers also complained that it was difficult to keep a large number of these cards in proper sequence. Consequently, a change was made in questionnaire format so that interviewers would read response categories whenever feasible. A second pretest of thirty interviews using the revised questionnaire followed. Since the second pretest ran smoothly, no further changes were made,and the pilot survey of 1000 interviews began in July 1972.

The bulk of interviewing was completed by September. At that time the survey team debriefed many of the interviewers. The interviewers found no major problem with the questionnaire, although they almost unanimously recommended that it be somewhat shortened, both in interview length and number of pages. The interviewers provided detailed comments about reactions by respondents to specific questions and made a great number of small but extremely helpful recommendations about questionnaire wording.

Results of the Tests

Free Time

Interviewers strongly stated that it was much easier for a respondent to estimate total free time within a time period than it was to estimate time spent doing various categories of activities. The

main problem was that the respondent often spent time simultaneously doing activities from two or more categories. When this occurred and the second questioning format was used, the respondent often became confused and frustrated, not knowing whether to double count his free time or else to arbitrarily allocate it to one category or the other. From an analysis point of view double counting of free time was not acceptable while any type of arbitrary allocation was not desirable. Consequently, the format was adopted which had the respondent estimate the total free time spent in each time period and then list activities done in that time period.

Preference

The interviewers commented that the first two alternative series of preference questions were much more favourably received by the respondents than was the third. The problem with the third alternative was that the respondent found it difficult to think of giving up present participation in activities even in order to do other "more preferred" activities. Unfortunately, this response pattern suggested that it would be difficult to obtain valid activity substitution information. Generally people were more comfortable talking about desired participation levels for activities they were presently doing. For present activities the listing of constraints was definitely an easier task.

The decision was then to choose between the series of questions in alternative I or alternative II. Alternative I was chosen as superior because it met the established criteria more completely. It

directly provided an idea of the magnitude of additional desired participation and also provided a measure of the influence of the perceived constraints.

It was decided ~~that preference questions would be better separately asked about activities presently participated in and then other activities~~ to separate the preference questions into those about activities presently participated in, and those about other activities. An additional set of ~~activities~~ questions was developed to measure substitutability of activities. These questions followed the ~~other~~ first activity preference questions in order to reduce the possibility of confusion and frustration. The Preference section was thought to be sufficiently important that a pretest of revised questions was believed necessary. This pretest was carried out in December of 1972 with a sample of 50 Metropolitan Toronto residents. ~~This~~ The pretest indicated that respondents could easily answer the revised preference questions.

Trip Information

~~Ths~~ The most pleasant surprise of the pilot survey was the willingness of respondents to provide detailed information about their last trip. The main complaint given by interviewers was that respondents had to first remember the Origin, Destination, and Accommodation information for each segment; next they had to remember total activity participation and finally they had to separate out that participation which occurred out of the province. In effect, respondents ~~separately~~ recalled their last trip three separate times.

Since detailed information seemed possible to gather and respondents naturally associated activity participation with corresponding trip segments, it seemed feasible to develop a series of questions that would take people through their trip describing, segment by segment, details of origin, destination, travel modes, accommodation, nights spent and activity participation. Such an approach would provide the type of location-specific activity information required but earlier thought to be impossible to obtain.

Two revised sets of travel questions were then developed. The only difference between the two sets was that the first alternate assigned all activity participation for a segment ~~with~~ to the destination, while the second separated participation into "en route" and "at destination" components.

The revised travel questions were tested in the December 1972 pretest. As a result of the pretest, alternative II was selected since it provided more information and was as easily answered as ~~was~~ alternative I.

Recall Within a Range

Only about ten per cent of respondents chose to estimate the frequency of activity participation within a range. Generally the mid-point of answers given within the range was 5-10% higher than the average for the corresponding specific answers. Most of the within-a-range answers were given for ~~the more~~ difficult-to-define

and for frequently-participated-in activities, such as recreational driving and walking. Since the option of allowing responses to be given in a range caused few additional problems to interviewers, and provided data that better reflected the perceived accuracy of respondents recall, it was retained for the main survey.

Drop-Off Questionnaire

The drop-off questionnaire only produced a 22% response. Because of this poor response rate, the procedure was subsequently discontinued.

Questions Dropped from Pilot Survey

Certain sets of questions were dropped from the pilot survey in order to shorten the length of the interview. ~~(interview length)~~. Eliminated ~~were~~ questions about:

1) time spent doing each activity on the last occasion;
2) with whom the activity was done;
3) organizations to which the respondent belonged, and
4) access to, and ownership of recreation equipment.

None of these questions ~~were~~ was high on the list of required information. It was decided that the first two ~~sets of~~ questions could be more efficiently obtained on site. The question about organizational membership was dropped because it was offensive to some respondents and it was also difficult to code. The series of ~~equipment~~ questions was dropped because respondents found it very repetitive, and recreational equipment sales data could ~~(meet)~~ provide the same basic information ~~need~~.

Changes in the detailed trip information along with the elimination of the above four types of questions reduced the ~~questionnaire~~ INTERVIEWING TIME from an average of 70 minutes to ~~about an average of~~ 50 ~~minutes~~. The number of required computer cards ~~per~~ required for each completed questionnaire was reduced ~~by one-half~~ from 38 TO 26.

Other conclusions reached from the pilot survey were:

1) It is necessary to thoroughly train the consultants management team about the objectives of the study and the intended use of <u>each</u> piece of data. It is very easy for the consultant to innocently adopt procedures or make interpretations contrary to the intent of particular questions (unless this is done).

2) All interviewers and field supervisors must be thoroughly trained. Very detailed written instructions must be provided. Special instructions are needed to cover very important procedures, such as those associated with sampling.

3) It is necessary to understand the chain of command used by the market research firm, and to have the prerogative of having field interviewers or supervisors dismissed if they do not follow instructions.

5 4) An independent post edit of questionnaires is required before keypunching.

4 When a specified number of interviews must be completed within a given month then it is necessary to set up procedures that ensure interviewing has at least begun in each are by a pre-determined date within that month. This will reduce the chances of finding out too late that interviewing in some area has not begun due to lack of time

6) A computer-edit routine should be developed and debugged so that it can be immediately employed on receipt of key-punching.

7) All coding should be done directly on the source document. This speeds up coding and significantly reduces coding error.

8) Participation in many types of recreational and cultural activities is highly associated with age, sex, household income and supply of opportunities.

Conclusions

A great many tangible and intangible benefits were realized from undertaking the Pilot Survey. For example, the analysis of the data and discussions with the consultant resulted in a one-third reduction in questionnaire length. This reduction meant a cost saving in interviewing time, in keypunching, and in the coding and editing cost of the Ontario Recreation Survey, that was equivalent to the Pilot Survey contract cost. Certainly, a comparable, if not greater, number of intangible benefits were also achieved from the Pilot Survey. The questionnaire was moulded into a smooth flowing, more precisely understandable, and more easily administered document. Data analysis of the Pilot suggested guidelines for the main survey sample design. Editing and other quality control procedures developed for use in the Pilot were applied to the Ontario Recreation Survey.

Furthermore, results from the Pilot Survey suggested priorities for the analysis of the Ontario Recreation Survey. Probably the most valuable benefit was the experience gained. From the Pilot Survey, government personnel were able to develop very specific tender specifications. If this had not been the case, the cost of obtaining information in the Ontario Recreation Survey would have been greatly increased.

Finally, the close involvement of government personnel in all stages of the Pilot and Ontario Recreational Surveys assured that the data gathered was specially tailored for recreation planning needs of the Province.

SAMPLE DESIGN OF ONTARIO RECREATION SURVEY

The purpose of this paper is to:

1) Outline the sample design for the ONTARIO RECREATION SURVEY (ORS) and to document the reasons for its resultant structure.

2) Describe the types of analyses and other tasks which need to be completed before the sample is weighted and released for analysis without the direct supervision of the TORPS Technical Committee.

Particular Characteristics

The goal of the ORS was not to produce estimates yielding the lowest Root Mean Square Error (RMSE) at the Provincial level. Accurate provincial estimates were considered to be important but not to the extent of eliminating the possibility of producing estimates of recreation and travel behaviour that would be acceptably accurate for regional planning in some of the less densely populated areas of the province. Such a strategy was followed in the belief that many planning decisions are made at the regional scale and according to the decentralization policy of the Ontario Government, more such decisions will be made in the future.

The survey emphasized a large number of call backs, up to four, and allowed no substitution of either randomly selected households or individuals. Particular attention to call backs and control on substitution was emphasized since such procedures have

been shown to be more efficient in reducing RMSE than increasing sample size (see Kish[1] and Deming[2]).

Selection of Survey Strata

Analysis of the Pilot ORS indicated that the variables of age, sex, household income and geographical area (including the location of opportunities) were most highly associated with difference in recreation and travel behaviour. Consequently, one would normally assume the ORS would be stratified, taking into account some combination of these variables. Unfortunately, at the time (February 1973) it was necessary to finalize the sample design, the only 1971 census data available were the number of households for each of the Ontario Enumeration Areas. This situation occurred despite written assurance from Statistics Canada that household income, age and sex cross-tabs should be available by late 1972. The most convenient and up-to-date supply information available was on day-use and camping opportunities per capita indices for urban centered areas in Southern Ontario (TOWARDS AN OUTDOOR RECREATION POLICY). As a result, the only data available for sample stratification were rough indices of supply of opportunities and detailed location-specific information about household population distributions.

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(1) Leslie Kish Survey Sampling 1965 (New York: John Wiley & Sons) Chapter 13

(2) W. E. Deming "On a Probability Mechanism to Attain an Economic Balance Between the Resulting Error of Response and the Bias of Non Response 1953". Journal of the American Statistics Association, Volume 48.

In total, seven geographic areas finally were choseh. These areas were a compromise between population size and the relative homogeneity of the types, variety, accessibility and the number of tourism and recreation opportunities available within their boundaries. These areas were believed to face significantly different supply-demand relationships and either singularly or in combination would require area-specific recreation policies. These areas are neither the five planning regions of TEIGA nor the planning regions of any specific TORPS member ministry. Such regions were not thought to represent adequately overall differences in recreation and tourism behaviour. The choice of geographical areas for sample stratification, however, should not cause undue difficulties, since all interviews and travel locations were coded at a very fine scale. Consequently, results can be displayed for any region for which information is required.

Selection of Sample Size By Strata

On the basis of the cost estimates derived from the pilot survey, a provincial sample size of 15,000 yielding approximately 10,000 completed interviews was believed adequate to meet minimum statistical requirements and yet be financially feasible. The question was then how to allocate the potential 15,000 interviews among the seven areal strata.

Analysis of the pilot survey indicated that a minimum of 1,000 completed interviews was an absolute prerequisite for the analysis of most three-way tables for incidence data over twelve

COMPARISON OF 1971 POPULATION vs ALLOCATED INTERVIEWS FOR ORS FOR THE 12 SUB-STRATA AREAS OF ONTARIO

(Column %)

Table 1

Area	Per Cent of 1971 Ontario Population	Per Cent of All Interviews
Ottawa	4.11%	4.0%
East Ontario	5.48	6.0
East Central (LU)	1.57	2.4
East Central (non LU)	4.67	7.6
Central (LU)	12.16	11.2
Central (non LU)	9.51	8.8
Metro Toronto	27.80	22.0
Southwest (LU)	9.13	8.4
Southwest (non LU)	9.94	9.6
Georgian Bay	5.91	10.0
Northern (LU)	4.25	4.8
Northern (non LU)	5.45	5.2

NOTE: LU - Large Urban (>50,000)

COMPARISON OF 1971 POPULATION vs ALLOCATED INTERVIEWS FOR ORS FOR THE 7 STRATA AREAS OF ONTARIO

(Column %)

Table 2

Area	Per Cent of 1971 Ontario Population	Per Cent of All Interviews
East	9.59%	10.0%
East Central	6.24	10.0
Metro Toronto	27.80	22.0
Central	21.67	20.0
Southwest	19.07	18.0
Georgian Bay	5.91	10.0
Northern	9.70	10.0

months or two-way analysis on volume data (recalled over past three months). Consequently, it was decided that a minimum of 1,500 interviews be allocated to each stratum. Within this constraint, total interviews were allocated to each of the seven strata in proportion to that stratum's share of the provincial total.

Interviews within strata were allocated to sub-strata of (i) areas located within boundaries of municipalities having a 1971 population greater than 50,000; (ii) all other areas. Allocation to each sub-stratum was directly in proportion to that sub-stratum share of the strata's total population. The Canadian Government Travel Survey has indicated that this type of sub-stratification can lead to a reduction in size of standard error of estimates for strata. Then, interviews allocated to each of the sub-strata were evenly distributed among the 12 months of the year. Interviewing throughout the year was believed necessary to get accurate Leisure Time Budget (LTB) information, to investigate the general problem of how answers to preference questions are related to time of interview and to take into account the desirability of restricting all detailed information including all volume of participation information to a three-month recall.(1) The three-month recall period has been shown by Statistics Canada to be the most efficient compromise between cost (number of interviews received) and variance of estimates as influenced by recall. Note that by properly comparing estimates of total participation

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(1) A. Ashraf, R. Platek and P. Timmons "Some Methodological Aspects of the Canadian Travel Survey, 1971". Paper presented to the First Canada Conference in Applied Statistics.

derived from the day before the interview (from LTB Section) and estimates derived from the past three months (Activity Section), it should be possible to calculate the error associated with a three-month recall.

Selection of Enumeration Areas (EAs)

Once the total number of interviews to be allocated to each of the 12 sub-strata were derived, it was necessary, because of cost, to choose smaller geographic areas in which interviewing would take place. The smallest practical geographic unit available was the EA. Eas, the basic building block of the Canadian census, are small geographic areas chosen so that the people residing in each have relatively homogeneous socio-economic characteristics. Maps are available showing the boundaries of all EAs. On the average EAs contain 175 households. All census information, subject to the rules of confidentiality, can be obtained for EAs. Consequently, estimates of socio-economic characteristics derived from a sample taken from known EAs can be compared against the census characteristic of these EAs, the region or even the province.

In deriving the sample of EAs for a given sub-stratum, it was first necessary to eliminate those EAs considered not to be properly part of the Target Universe. Consequently, EAs found on Indian reserves were eliminated, as were EAs entirely made up of institutions such as psychiatric hospitals. Indian reserves

were rejected because they do not fit into the realm of provincial jurisdiction. Institutions were eliminated since the recreation behaviour of their residents was believed to be radically different from the population as a whole. Also institutions often have recreation facilities which are both self-contained and restricted to use by residents of these institutions. Furthermore, practical experience has shown that it is extremely difficult to complete interviews with these two small groups within the population.

Selection of Cluster Size

Economic considerations led to the decision to allocate five interviews to each of the selected EAs. This "cluster size" was selected as the best compromise between maximizing the number of clusters and minimizing interviewing travel costs.

Since a cluster size of five was chosen, a minimum of 300 clusters would be found in any of the 12 strata. It was believed that such a large number of clusters would give the sample adequate heterogeneity to include various socio-economic characteristics of the stratum and compensate for the fact that information available would not allow for further stratification of EAs into income classes, etc. Needless to say, this is not the most efficient sampling method, but in the absence of data for stratification, this was the only relatively safe course of action to follow.

Within each of the 12 sub-strata, EAs were selected according to a simple random sampling with replacement procedures. EAs were not weighted according to their number of households since most EAs seemed to have approximately the same number of households. If this lack of weighting is considered to be generally unacceptable, there is no problem in deriving the true probability of selection of each EA since EA data on the number of households are readily available. Once the total list of EAs for a sub-stratum was derived, then one twelfth of all interviews were allocated to each month of the year.

Within each EA, the following selection procedure for households and respondents within households was followed:

1) Take EA map and overlay a co-ordinate grid system.

2) Randomly select two numbers to fix a point on the grid system.

3) Take the road intersection closest to the random point.

4) Select a random number 'n' (1-5) and begin walking from intersection towards random point. Select the nth household according to above, going around the block if necessary.

5) Select every third household in rural areas and every fifth household in urban areas until five households have been selected.

Once the household is selected, write down the age of each household member starting with the oldest and going to the youngest. Using the random number written on the questionnaire, select according to the household list, one person 12 years of age or older. Persons who are temporarily away at school were also

excluded from selection. (Omitted to avoid possibility of duplicating person's chance of being interviewed at school or university and again at permanent residence.) This is the selected respondent. Make up to five total calls to complete interview. Make no substitutions of either households or individuals within household. Note that the 12 years of age cut-off for potential respondents was chosen since the limited available psychology of memory literature suggests that 12 is the minimum age when most males and females develop a dependable time horizon for recalling events.

The method used for selecting a respondent tends to over-represent individuals in small households and under-represent individuals in large households. The practical implication is that young people and those in larger-than-average households are under-represented, and older people and those in smaller-than-average households are over-represented. However, the extent of this non-representativeness is easy to measure and can be corrected by weighting.

The particular method of selecting the respondent according to a random number fixed to the ages within the household was chosen because of its simplicity (less chance of an interviewer choosing the wrong person) and the theoretical arguments against using age/sex/household size grids often used by market research firms. The method by which every nth person in an EA is chosen was rejected because it offered the possibility of inconveniencing some households in which interviews would not take

place and because it raised the possibility that more than one interview was possible from particular households. Thus the method was rejected on both practical grounds as well as theoretical grounds (lack of independence in the behaviour of various members within a given household). The procedure of pre-listing every person 12 years and older within an EA and then randomly selecting five of these was rejected as being, financially, totally out of the question.

Determination of the Probability of Selection

The ORS is a known probability of selection sample. For each stratum and month the probability of selecting (for interviewing) a given individual$_m$ 12 years of age or older is:

$$P_{mnop} = \frac{\text{(1) Total Number of EAs to be Selected in Stratum}_p}{\text{Total Number of Eligible EAs in Stratum}_p} \times \frac{\text{(2) Average Number of Households per EA in Stratum}_p}{\text{Total Number of Households in EA}_o} \times \frac{\text{(3) } 5}{\text{Total Number of Households in Selected EA}_o} \times \frac{\text{(4) } 1}{\text{Total Number of Respondents 12 Years and Older in Household}_n} \quad A$$

In the above:

(1) defines the probability of selecting an eligible EA,

(2) corrects for any difference among number of households for EAs in the stratum,

(3) defines the probability of selecting a household within an EA,

(4) defines the probability of selecting an eligible respondent within a household.

To weight the sample for disproportionate sampling among strata, [redacted] cases within strata equation (A) must be multiplied by:

$$\frac{\text{Proportion of Total Eligible Respondents in Stratum}_p}{\text{Proportion of Interviews in Stratum}_p}$$

Future Tasks to be Undertaken

The following tasks need to be completed before the ORS should be released to those unfamiliar with it. These tasks are outlined in Figure 1 and are briefly described below.

A. A record of "outcome of calls" file containing the results for each attempted interview must be coded and keypunched. This task presently being undertaken.

B. Information must be obtained from Statistics Canada re:

number of households)
number of individuals)
age/sex characteristics) for each EA
income characteristics) in Ontario
language characteristics)
other (possibly))

These data required to determine exact probabilities of selection, to assess how well the sample estimates the census population and to construct a non-response weighting model.

C. A file of eligible and ineligible EAs for each of sub-strata needs to be created.

D. By combining B and C, the probability of selecting each household can be determined.

E. The results of D and A, along with all completed interviews, should be merged on a Master File of the 12 months of data.

F. From E the probability of selecting each respondent can be calculated by combining information about probability of household selection and probability of selecting an individual within each of the selected households.

G. Next, a preliminary weighted Master File of interviews can be created.

H. From this preliminary weighted file sample means, proportions and variances can be computed for selected variables such as: proportion of population taking a vacation, average number of activities participated in the past 12 months, etc. Then, preliminary standard errors can be calculated.

Simultaneously to D-H work needs to begin to calculate non-response bias.

I. The first step is to create a summary file of outcome of calls from task A. This file would contain rates of non-response due to:

(a) not at homes)
(b) refusals) for each of the sampled EA
(c) other factors)

J. Information from I would be combined with information from B (socio-economic characteristics of EAs) to form a new file.

K. From this file of non-response rates and socio-economic characteristics, certain statistical associations or correlations should be determined, e.g. "Is refusal greatest in higher income areas?", etc.

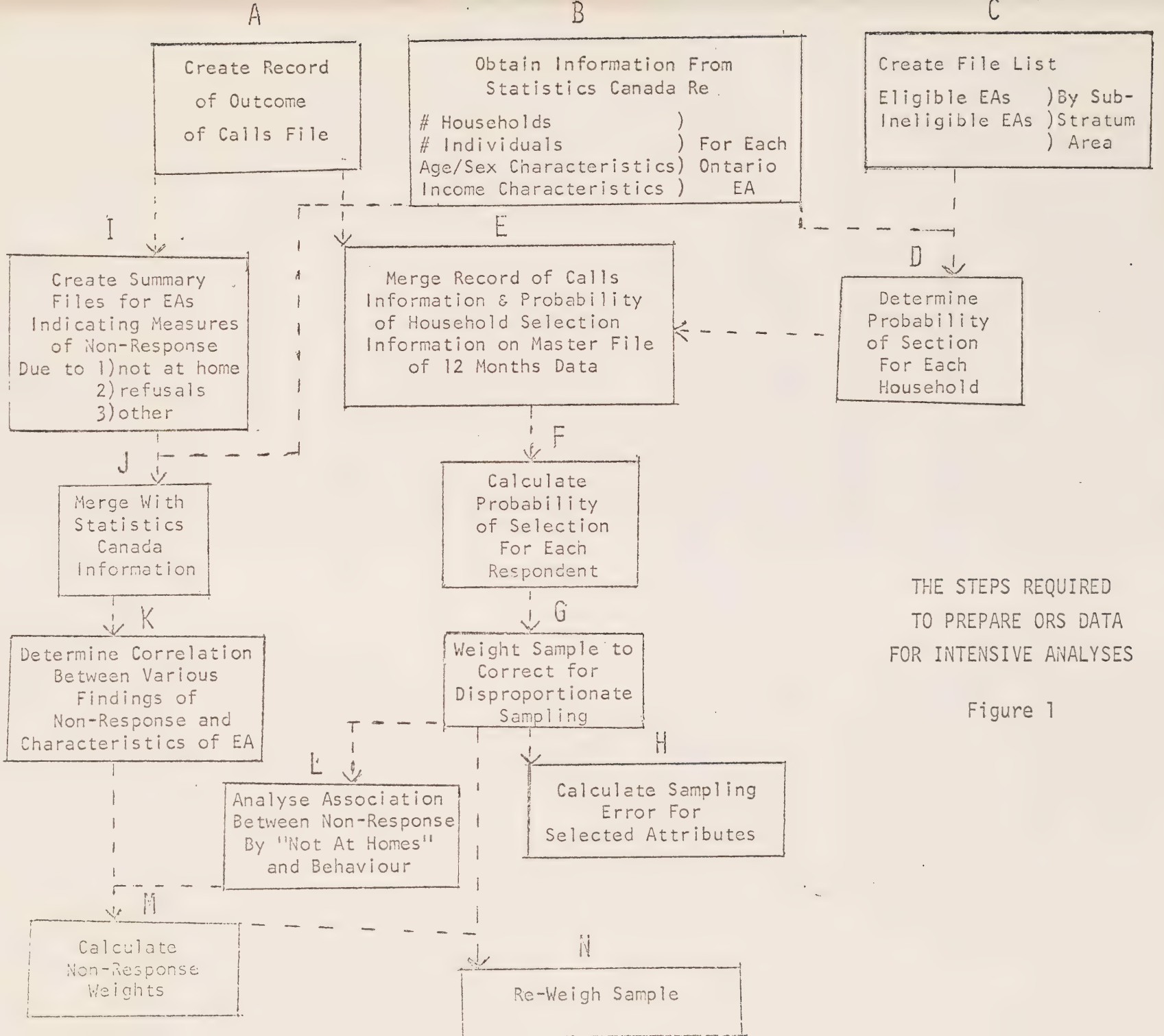
L. From the partially weighted tape created in G, the analysis of the association between certain socio-economic characteristics and measures of recreation and travel behaviour can be determined. For socio-economic variables highly correlated with behaviour, tests of association can be made against number of contacts needed to complete interviews. This should help in the estimation of the behaviour of non-respondents due to not being at home.

M. The results of K and L then need to be combined in order to develop a non-response model which can be used to calculate non-response weights.

N. Finally, a tape weighted according to non-response as well as probability of selection needs to be created. From this tape estimates of the sampling variance associated with the statistics of a few key variables should be computed.

As described above, considerable work is needed to produce proper weights for each case and to calculate even first level sampling variance. Most of the work described above could be done by a person with a reasonable background in statistics. However, two particular areas require real expertise and experience.

The first area is advice about how to most efficiently measure sampling variance in our complex multi-stage sample. Related to



THE STEPS REQUIRED TO PREPARE ORS DATA FOR INTENSIVE ANALYSES

Figure 1

this problem is how much effort is required to calculate the sampling variance at each sampling stage. Finally, advice and possibly the actual development of a non-response model for calculating non-response weights is required.

Missing Values and Logical Errors

A second major area of concern that needs to be considered before releasing the tape is how to handle the missing values and logical errors as pinpointed through our manual and computer edits. For internal purposes all such cases can be treated as missing values. The effect is a small reduction of "N" for such estimates with the resultant increase in standard error. This does not apparently pose any kind of serious problem, it merely makes analysis a little more messy. The fact of the matter is that the members of the Technical Committee are familiar with these problems and handle them in a more or less routine manner. We are concerned, however, that others will be confused by this situation and could make serious misinterpretations of the data as a result. What then are the courses of action to take?

1) A complete documentation of the editing routine used, conventions and rules used, both manual and computer edit, as well as reasons believed responsible for such missing values and logical inconsistencies should be prepared. It is estimated that 90 per cent of such documentation is now available in written form. However, much of it is scattered in various memos or is written in computer language. Consequently, it will have to be summarized in language known to most analysts before any tape is released beyond the government.

2) A second course of action is to release only tapes containing error-free cases. Unless the number of variables requested is small, this is tremendously inefficient. Our 12-month Master File will contain over 1,000 variables and the chance for at least one error is high. However, when one looks at any particular variable or even cross-tabs of variables in almost no cases do more than 2 per cent of the cases have to be discarded and in a majority of the cases, the figure is less than half of one per cent.

3) The third course of action is to statistically impute estimates for missing values and/or logical inconsistencies. Such a procedure involves determining of the relationship between a given variable and other closely correlated variables and then predicting the value of the missing value. This is most often done by regression methods. Such imputations are widely used by Statistics Canada. They appear somewhat time consuming, but not overly difficult to understand. It is recommended that once weighting has been completed, we contact Statistics Canada to get a further elaboration of the process they use. We may find that it is feasible to impute missing values, etc., only for a limited number of variables.

The real purpose of outlining points 2 and 3 above is to suggest that alternative methods are available to us to clean a tape to the degree that no one would misinterpret or discredit our data because, to take an outlandish example, 5 cases out of 10,000 report that the female head of the household is a male.

It is recommended that the weighting and calculation of sampling error is indeed our top priority and, after this is completed, we will have much better estimates about the number of missing values, etc. At that time it will be necessary to trade off the benefits and costs of further cleaning of the tape versus the production of reports.

Larry A. Douglas
October, 1974

FORWARD TO CHAPTER 4

The Ontario Recreation Survey is a complex, integrated multi-objective project. Consequently, innumerable difficult decisions had to be made in order to complete the survey design. Most of these decisions involved making the optimum trade-offs between data requirements and budget constraints. The data requirements that the survey was designed to meet have been documented in Chapter 1 (Data Requirements), while most of the effects of budget constraints have been outlined in Chapter 3 (Sample Design). Chapter 2 (Ontario Recreation Pilot Survey) indicated that the ORS would face a further constraint in interview length. It was found that both the interviewer and the respondent lost interest near the end of the interview if the interview was much more than one hour.

The primary objective of the ORS was to provide estimates of the incidence, frequency and location of participation in 73 selected recreational activities and to provide travel mode, accommodation and destination related estimates for the weekend and vacation trips of Ontario residents. The Free Time, Preference and Demographic Sections were, for the most part, included to provide the perspective and integrated frame work thought necessary to properly interpret activity and trip data. Information about home-based recreation participation was given the greatest attention since this type of participation accounts for the bulk of all participation in most recreation activities. Information covering weekend and vacation trips in Ontario was emphasized for similar reasons.

April 1975

Chapter 4 of the Survey Manual was developed to provide the user with an understanding of the ORS questionnaire and to provide an initial guide to the feasibility of doing certain types of analyses. More specific purposes were:

1) To outline the interrelationships between questions found in the same section and/or those in other sections of the questionnaire.

2) To describe the major reasons for the particular format and content of various sections.

3) To recommend the types of preliminary analyses which are necessary before basic estimates can be made and to indicate the types and degrees of caution believed necessary in interpreting other estimates.

This chapter was divided into five sections in order to provide the documentation described above. The sections include:

A. Household Census and Demographics
B. Recreational Activities
C. Weekend and Vacation Trips
D. Free Time Activities Yesterday
E. Activity and Trip Preferences.

When reading these sections the user must realize that neither all the background considerations nor all the possible types of analyses could be described. Since the questionnaire included approximately 1000 variables, complete documentation was not feasible. Nevertheless,

it cannot be emphasized too strongly that any user of ORS data tapes must become thoroughly familiar with the content of Chapter 4 as well as Chapter 3 (Sample Design) and Chapter 5 (Weighting and Estimation Procedures) before undertaking any analyses. This warning applies not only to the intended uses of the data as outlined in Chapter 1 but also to other possible applications as well.

DEMOGRAPHICS

Demographic information about the selected household and more detailed information about the selected respondent were split between Section A (Household Census on Respondent Selection) and Section H (Demographics) of the Questionnaire. Section A included information about the age, sex, relationship to Household Head, and employment status of each individual within the household. Additional information about whether or not sons or daughters 16-25 years of age were temporarily away at college or university was also obtained.

Household members less than 12 years of age and individuals temporarily away at school were excluded from sampling eligibility. However, basic information was gathered about these individuals so that characteristics of selected households could be directly compared to census information. Student residence, hospitals and other "temporary" residences were excluded from being eligible sample areas to reduce double counting as much as possible. Unfortunately, it was not thought logistically possible to exclude students living in apartment buildings in university towns from the sample, the major problem being how to tell whether or not a particular dwelling unit in which students were living had been included in the 1971 census. It was also believed that any attempt to exclude these dwelling units would seriously disrupt the sampling scheme. When the selected respondent was a student living in what appeared to be a temporary residence, the student's present address was recorded on the questionnaire.

February 1975

By specifying individuals into groups according to age, sex and relationship to household head, it is possible to define most types of households such as "family household", "non-related households", "single-parent households", etc.

The question about whether particular individuals were working full or part time was intended to be used in combination with either respondent's and/or household head's employment status information from Section H. Such combined information can be used to elaborate whether or not student housewives or retired people had part-time jobs.

Three general principles were followed in the development of the Demographic Section (H) of the questionnaire.

1. Definitions of variables and response categories for variables would be compatible with 1971 census information except when a particular reason could be specified why this strategy should not be followed.

2. Information would be collected about the respondent's characteristics except when it was strongly believed that the characteristics of either the entire household or the household head would also strongly influence the respondent's preferences or actual behaviour. In most of these situations duplicate sets of characteristics would then be collected.

3. Most socio-economic characteristics which had been found in the literature to be significantly associated with differences in recreation and travel behaviour would be included. Information would be gathered in as disaggregated a form as feasible in order to allow maximum flexibility in developing categories for analysis. The general objective would be to facilitate maximum possible scope for analysis.

Vacation Homes

The information from Qu.1 is comparable to the 1971 census question about vacation homes. Qu.2 specifically locates vacation homes; Qu.3 determines whether or not they were rented out during the past 12 months; and Qu.4 determines the number of weeks they were rented out. Information from Qu.3 and Qu.4 is necessary to determine whether private vacation homes are the exclusive domain of their owners or whether this type of land-use, like parklands, provides some public recreation opportunities. Caution should be exercised in interpreting results from Q.3 and Qu.4, because individuals may have rented out vacation homes, not reported this rent as taxable income and, consequently, not wished to acknowledge that their homes had been rented out.

Automobile Ownership

A question about automobile ownership was included to determine the relationship between such ownership, the incidence and frequency of recreation activity participation and where resulting participation takes place. This information is thought useful in projecting the effect tourist markets and urban parks may encounter because of possible change in automobile ownership patterns.

Education Variables

Up to four education related questions were asked of the respondent (Qu.6-9) and up to two questions were asked of the head of the household (Qu.14-15). Qu.7 and 8 were included to provide

more flexibility in determining when the respondent is a student. Responses to these questions should be used in conjunction with Qu.10 about present work status to ensure that a student working full time, possibly during the summer, is properly classified for the objective of a particular analysis. The second parts of Qu.9 and Qu.14 allow further sub-dividing of education categories. Also note that Qu.9 and Q.14 ask about the highest grade completed, not highest grade attended as used in the 1971 census. The survey team thought it was much more important to know whether or not a particular level had been completed since many job requirements are based on completion of a given level of schooling.

It is recommended that certain types of analyses would be best served by using a surrogate education variable. Such a surrogate variable would compare the education of the respondent and the head of the household and would adopt the highest level obtained by either. The surrogate variable would offer the advantage of recognizing that differences in younger people's values can often be traced to the influence of the different education levels of their parents. It also recognizes that the above relationship can become weaker or even reversed when older teenagers and young adults reach education levels which are higher than those of their parents.

Occupation

Four occupation related questions were asked of the respondent (Qu.10-13) and/or head of household (Qu.15-18). Occupations were classified according to the 1971 census 3-digit classification system. In total, 93 classes were identified. By

combining occupational variables along with other selected variables, such as income, education, age, dwelling type and size of community, it may be possible to create what the sociological literature terms as life-style variables. The detailed occupational classifications which were used also provide the opportunity to apply Blishen Type scales. These scales use occupation as a surrogate measure of socio-economic status.

Work Time

Qu. 19-24 probed the work-related (time) demands faced by either the respondent or else the head of household. The latter case applied when only the head of household worked full time. The questions were omitted for households having no one regularly working full time.

Total hours worked per week can be determined by combining information from Qu.19-23. Qu.19 provides an estimate of the number of hours worked at the primary job. Qu.20 identifies daily commuting time associated with the primary job. This time must be multiplied by the number of days worked which is provided from Qu.21. Finally, Qu.23 details total hours associated with a possible second job.

For respondents working full time (determined from Qu.10), the above questions provide the opportunity to develop a weekly work-time budget which can be indirectly compared to a corresponding free-time budget derived from Section E. Comparisons between free-time and work-time budgets must be done on a group basis. Individual comparisons could result in spurious correlation for those cases where the day for which free-time was asked happened to be during the respondent's vacation.

Work-time information was collected for head of household when only that person was employed full time, in order to determine what, if any, effect the work demands of the household head have upon the recreational participation pattern of other non-working household members. The information was also collected to at least partially answer questions such as "Is the type and frequency of recreation participation by homemakers influenced by the time the husband spends working and/or commuting?" Again this analysis must be done on a group basis and only those cases that are appropriate to the particular analysis must be used.

Various types of "work-weeks" can be created from Qu.21 by combining the different sequences and number of days worked. This work-week type (variable) can then be compared with various measures of recreation participation. However, results from such an analysis must be interpreted with care, since the last week worked may not have been typical, such as the case of the worker on a rotating shift. Questions that would have provided further elaboration were curtailed since the pilot survey indicated that people were getting annoyed about the number and detailed nature of this series of questions.

Qu.24 provides information about weeks worked by the respondent or head of household, while Qu.25 provides information about ~~weeks taken off~~. By tabulating these data against the number of vacation trips taken and participation in selected activities, one should be able to suggest the possible affect on recreation and tourism facilities resulting from either a decrease in weeks worked, an increase in vacation time, or a combination of both.

Dwelling Type

Qu.29e provides the analyst with the opportunity to separate apartment buildings according to number of floors.

Mobility

Qu.29(a) was asked to determine what, if any, relationship exists between frequency of residence changes, and recreation and tourism behaviour. Q.29(b) allows an assessment of the disruptive effect of a recent move on the total frequency of participation. If a respondent has moved into a new community (Qu.29(c)) within the past three months, then that person's present location should not be used as an origin for any of his trips. Unless this rule is followed, some apparently ridiculous trips could occur. For example, a person who has just moved to Kitchener from Calgary could indicate that his last skiing day-trip was at Lake Louise.

Language

Qu.30 to 32 enquired about language spoken in the household. Such questions were intended to provide the capability to analyze and correct for the possibility of higher non-response rates from ethnic groups. These questions could also provide information about the recreation demands of certain recent groups of immigrants.

Qu.33 and 34 provided information about the total annual income of the respondent and the respondent's household. Household income was chosen as being a more appropriate measure than family income for several reasons. Family income only applies to individuals

living in an economic family. Unrelated persons either living with a family or with other unrelated individuals are not represented by this measure. Consequently, the adoption of family income would have required two income measures and two corresponding sets of tabulations. Furthermore, household income is the only measure which recognizes that unrelated people living together can share common living expenses and as a result can have a larger proportion of their income available to spend on recreation and travel.

ACTIVITY SECTION OF THE QUESTIONNAIRE

ACTIVITY SECTION "B"

The Activity Section of the questionnaire was divided into two main subsections. The first had respondents indicate which of 73 recreational activities they had participated in at least once during the past 12 months. They were then asked to specify which of these activities had been done during the previous three months. The second subsection obtained detailed activity information regarding only those activities participated in during the past three months. Included were several detailed questions about the last occasion that an activity had been done, the total number of different days during which participation had occurred, and the number of different days in which participation took place on either weekend or vacation trips during the past three months.

Some of the 73 activities were grouped for the purposes of the second subsection. For example, the three hunting activities of big game hunting, small game hunting, and waterfowl hunting, were combined into a general category called "hunting". Respondents who had indicated participation in at least one of the three hunting activities during the past three months were asked detailed questions about the last occasion they had participated in any one of the hunting activities. They were then asked to recall the total number of different days in which they had participated in one or more of the hunting activities.

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Activities were grouped so that, within the time constraints of the questionnaire, information could be obtained for a greater number and range of activities. This decision, of course, sacrificed the amount of information that would be made available for any one specific activity.

Grouping of activities was done on the basis of:

a) similarity in the nature of the activities in the group;

b) the resources and/or facility requirements; and

c) the fact that certain combinations of activities are administered by distinct agencies of the provincial government.

This latter criteria is important in planning since it allows information about participation to be directly related to specific programs. Activities with high participation rates were not grouped. For example, swimming, picnicking, visiting historic sites, and recreational driving remained as distinct activities.

Recreational planning has long suffered from a lack of integrated data based upon participation. Most past surveys have either been activity specific (e.g., hunting) or else have only considered a restricted universe of users (e.g., users of private campgrounds). Definitions of participants have varied from those who have participated in the activity at least once in their lifetime to those who have participated at least once a week. No common definition of what constitutes the unit of participation has been used and far too often the problem of unit specification has been totally ignored. Although many of these past recreational surveys have met their stated

objectives, they do not provide the type of information necessary for integrated systems planning. The Ontario Recreation Survey was designed to fill this information vacuum and the Activity Section is its key component.

The second Activity Subsection contains 23 sets of detailed questions, each of which corresponds to an activity or activity group defined from the list of 73 recreational activities - see Table I. The first 22 sets of questions refer to the first 34 activities on Page 3 of the questionnaire. The remaining 39 activities were all grouped in a category called "Other Activities". Any such division of activities is, to some extent, arbitrary, since it is nearly impossible to define mutually exclusive selection criteria. However, it can be generally claimed that the first 34 activities were emphasized for one or more of the following reasons:

1) The Provincial Government has a major responsibility for directly providing the necessary facilities and resources, or access to them.

2) The provision of opportunities for the activities is important to the infrastructure of the tourism industry.

3) The Provincial Government provides substantial grants to other agencies who, in turn, provide the necessary opportunities.

Provision of opportunities for most of the "Other Activities" has traditionally been a major responsibility of either the private sector or municipal governments. Consequently, getting detailed information about these activities was not as high a priority.

The detailed Activity Section was designed to provide most of the following types of information for each of the 23 activities/ activity groups:

a) Total Participation

Estimates of the total days of participation, the number of days of participation while on weekend/vacation trips, were obtained for the first 22 activities or activity groups. These questions were also asked for each of the "Other Activities" in recognition of the diversity of activities in this group.

b) Location

The location where the last occasion of participation occurred was asked for each of the activity/activity groups. Locations were required to the nearest town, village or city in Ontario with less detail outside the province. A hierarchical coding system was used which allows easy aggregation of specific locations into township and county units. Location information was gathered in order to determine how far people travel for participation in different types of activities. Such information is extremely important in determining market areas for particular cities and estimating a probable volume of use at specific proposed facilities.

c) Jurisdiction

Respondents were asked to indicate the jurisdiction in which the last occasion of participation had occurred. These data are needed to estimate the percentage of the total participation that is being provided by each of the various jurisdictions within Ontario. Analysis of these data should recognize the fact that some respondents may have had trouble in distinguishing among the various types of public jurisdictions. Probably the greatest error potential was in properly distinguishing between municipal and regional facilities in the Metro Toronto area. Here we suspect the name "Metro Toronto Conservation Authority" confused some respondents. It should also be noted that for water-based activities, jurisdiction refers to the point of access.

d) Time

Three sets of detailed time-related questions were asked about the last occasion of participation for the first 20 activities/activity groups listed on page 3 of the questionnaire. Included were questions about (a) the day of the week, (b) whether or not the activity was done while on an overnight trip and (c) whether or not participation took place during the respondent's vacation. By cross-classifying responses to these three questions, it is possible to define the major time periods of participation identified within the TORPS prototype model. The

most important time break determines whether or not participation occurred on an overnight trip. This procedure allows a division of the information into home-based or non home-based use. Most of the projection models are segmented on this criteria and many supply standards are implicity developed for only home-based participation. Day of week information was recalled to estimate the extent of daily peaking for different kinds of activities. Peaking information is critical to facility design and has been identified as a key concept in the Ontario Recreation Supply Inventory methodology. By cross-tabulation the information from the "vacation or not" questions with that from the "overnight trip or not" questions, some participation occassions can be identified that can be directly linked to the last weekend or vacation trip, which is described in detail in Section C.

e) Activity Specification

In those cases of activity groups a question was included to specify which activity was done last. By identifying the activity done last, it may be possible to consider more specific relationships. For example,

- do people travel further to do home-based sailing or home-based motorboating? OR
- do municipal governments provide for more golfing than tennis participation?

f) Miscellaneous

Some of the activity sections included questions which asked which particular types of facilities were last used by the respondent. For example, swimming facilities were divided into three categories - indoor pool, man-made outdoor pool, or lake, river, ocean or reservoir. Such data provide a planner with the opportunity to, for example, compare the distance people travel to use natural environment swimming areas vs man-made pools. For snowmobiling, snowshoeing, cross-country skiing and hiking, last occasion participation was divided into that which occurred on designated areas or trails vs that which did not. Other miscellaneous questions were included to provide data which was particularly important to planning specific activities. For example, a question was asked to determine which activities were being done in conjunction with a personal nature appreciation outing.

Camping and Visiting a Private Recreation Home

The Ontario Recreation Survey was designed to provide the type of data that would allow camping and visiting private recreation homes to be analyzed as activities, as well as accommodation types. Camping and visiting a private recreation home were treated as activities in Section B in recognition of the argument that each has identifiable and peculiar sets of associated sub-activities. For example, singsongs and marshmallow roasts around the campfire are typical scenes at campsites. In order to facilitate analysis of the activity/accommodation package concept identified in the TORPS Prototype

Model, the activity questions in Subsection 22 of Section B were designed so that detailed information about the last occasion of camping or, for example, cottaging could, in certain cases, be linked directly to corresponding weekend/vacation trip information from Section C of the questionnaire.

Visiting a Private Cottage, Chalet, Hobby Farm, or Other Recreation Home (21)

Question 2 in this set of questions determines whether or not the respondent had stayed overnight on his last visit to a private recreation home. The purpose of this question was to provide an estimate of means the extent to which private cottages, etc., act as destinations for home-based day trips, and consequently take some pressure off alternative local public facilities. If the respondent stayed overnight at a private recreation home, this information can be cross checked with the accommodation type used on the respondent's last weekend or vacation trip. When a private recreation home has been used in both cases and the destination in question 1 subsection 21 and a destination for the last trip are the same, then recreational activities done while staying at the private recreation home can be determined. Question 3 asked whether the vacation home last visited was owned, rented, or used free of charge. This question was included to determine the extent to which private recreation homes are used by their owner's household as opposed to providing opportunities to the general public.

Care must be taken in estimating the total number of home-based recreation days spent at private recreation homes. To get such an estimate, it is necessary to take the responses from question 4 and then subtract the days associated with all weekend and vacation trips. The main problem is properly translating nights, which are recorded in the detailed trip section, to days. To do this correctly, it is necessary to add 1 to the number of nights of recreation home accommodation at each destination. Another possible problem is that some respondents may have mistakenly provided responses in terms of nights instead of days when responding to question 4. When estimating the percent participation at recreation homes, according to whether it is owned, rented, or used free of charge, estimates should be made separately for home-based and non home-based participation and these separate estimates should be weighted by the percent use in each time period before totals are calculated.

Camping (22)

The first camping question was asked to provide a rough estimation of the percentage of camping which is accommodation-oriented. Responses to 3(a) provide an estimate of the percentage of all camping that is wilderness-orientated. To estimate wilderness-camping as a proportion of all camping, the responses to question 3(b) should be divided by the sum of all responses to question 2(b). Also note that by selecting all respondents indicating 'yes' to 3(a), a profile of wilderness

users can be developed. Data regarding the locations of camping in Ontario must be obtained from the detailed weekend and vacation trip sections (Sections C and D). In those special cases where the last weekend or vacation trip included camping, information from subsection 22 of the detailed activities section applies to the last trip and it may be possible, for example, to make preliminary estimates about the location of wilderness camping, Crown land camping, etc.

The Last Occasion

The primary objective of the detailed activities section was to provide a means of portioning estimates of the total participation in activity groupings by the various combinations and permutations of locations, jurisdictions, time periods, sub-activities, and the particular types of facilities used. From an analytical point of view, the best way to do this is to have the respondent describe each of the recreational occasions in terms of the above characteristics. Of course, this approach is not practical from an interviewing point of view unless only a very limited number of activities are to be considered. The choice, then, of alternatives came down to either obtaining detailed information about the "average occasion" or else obtaining information about a specific occasion of participation. The first approach was evaluated as unacceptable, since it reduced the chances of including some of the rarer events, e.g., the longer than average trip to a particularly attractive beach. The method of taking the average event could also lead to spurious correlations and

other interpretation problems associated with the analysis of group data. Finally, respondents generally have problems in answering questions which are not time or space-specific. Consequently, it was decided to have respondents provide details about the last occasion in which they had participated in each of the activities and activity groups. The strategy was to set the survey up in such a way that the last occasion of participation could approximate a random event. Then, most interrelationships could be treated within a probablistic framework. This is one of the main reasons that the interview schedule was spread within strata as evenly as possible among the twelve months in the year, weeks within each of the months, and days within the weeks.

For home-based participation, information on the last occasion could be slightly biased for interviews completed when an activity is out of season. For example, for a person interviewed in May, his last occasion of skiing on a vacation trip may be at a location further from his home than if he had been asked the same question during the middle of the ski season.

The location of the last occasion should generally not be used to partition total non home-based participation among geographical areas. The problem here is that the last occasion has a greater chance of occurring nearer to the respondent's home. Locational estimates of non home-based participation should be made from the detailed weekend and vacation information (Sections C and D).

The same problem will occur with jurisdiction data since certain jurisdictions are more important suppliers of recreational opportunity in some areas of the province than others. As no easy way could be found to determine an unbiased estimate of the amount of non home-based participation provided by each of the various jurisdictions, the analyst must use the data from the question at his own risk. To eliminate as much potential bias as possible, all tables using jurisdiction as a variable should be broken down by home-based and non home-based use and totals should reflect a relative proportion of non home-based vs home-based participation.

Units of Participation

Section B of the questionnaire provided estimates concerning the total frequency of participation for each of the activities and activity groups in terms of the number of different days in which participation took place. All estimates apply to the three months prior to the interviewing date. Thus, a unit of participation can be called "an activity day" and its definition allows a respondent to do more than one activity on any given day.

Certain analyses may require estimates to be made of the total frequency of participation of one of the activity groups. For example, the analyst may be required to estimate the average number of home-based days of participation for cross-country skiing, but he finds that within the questionnaire he can only provide an estimate for the combined activity of cross-country skiing and snowshoeing. A possible solution to this problem would be to multiply the total number of

participation days for that activity group by the proportion of all last occasions that were cross-country skiing. However, such an estimate could be low because it does not take into account the fact that both cross-country skiing and snowshoeing could occur on the same day. One possible way to correct for this dual activity participation would be to estimate the probability of its occurrence from the free-time-activities-yesterday section (e) of the questionnaire. Then estimate the corresponding number of days in which dual participation occurs. Add this additional estimate to the original estimate of cross-country skiing and snowshoeing days and then multiply the sum of these two numbers by the proportion of last occasions that were cross-country skiing.

SECTIONS C AND D - WEEKEND AND VACATION TRIPS

Questionnaire Sections C and D were designed to collect detailed information about weekend and vacation trips taken by respondents. For any trip to qualify for inclusion (1) the respondent must have been away from home at least one night and (2) the purpose of taking the trip must have been other than just business. For trips that were a combination of business and non-business more than one-half of the days must have been spent for purposes of recreation and/or for visiting friends or relatives. Weekend trips were limited to a maximum of four nights away from home and must not have included any of the respondent's vacation time. Vacation trips included all other trips.

Except for questions about the incidence and frequency of trips taken within the past 12 months, all questions within the two sections were limited to trips ending within the three months prior to the date of interviewing.

Respondents who had taken a weekend or vacation trip during the three month recall period were asked three series of questions. The first series included questions to provide data necessary to classify trips, to enable statistical weighting and to facilitate strict computer editing of other more specific information. The second series of questions was designed to provide detailed segment by segment information about the last trip taken. The final series of questions had respondents indicate the total number of trips which they had taken within the three month recall period and to describe

some selected characteristics of these "other trips". All three series of questions applied separately to weekend and vacation trips.

As indicated earlier, only trips ending within the three month recall period were described in Sections C and D. This arbitrary definition provided interviewers with a simple, yet precise, rule of how to treat trips that were in progress three months prior to the interview date. Without the above definition, the total number of trips taken would more likely have been underestimated due to non-response bias. Such non-response could result from the fact that some potential respondents (or households) were not contacted during a sampling period simply because they were away on a trip. One would suspect that this non-response bias would have the greatest effect on estimates of vacation trip characteristics due to the longer period that potential respondents would normally be away from home.

General Last Trip Information

The first set of trip questions found on questionnaire pages 11 and 15 respectively provides information necessary for classifying special types of trips. Qu.4 provides information about the exact date the last trip began. Consequently, it is possible to consider specific trips taken, e.g. from July 15 - September 15, and compare these trips to other trips occurring in either overlapping or separate time periods. Qu.5 allows trip classification according to main destinations, while Qu.8 provides party type information. Qu.9 provides party size information which

it is necessary to have in order to compute trips from person trips. Finally, Qu.6 which asks where the trip exited the province, Qu.7 which asks about nights outside of Ontario, and Qu.10 which asks about total nights away from home, were included to provide information for a complex editing ~~produce~~ procedure. Edit routines are described in

Detailed Segment by Segment Information

Trips were divided into segments for questioning and recording purposes. Except for special cases, the origin, destination, transportation mode and number of nights spent at the destination were specified for each segment. In all cases, the number of nights in Ontario recorded for each trip segment (see questionnaire pages 12, 16) should sum to the total number of nights away from home minus the number of nights outside of the province (see Qu.10, 7, pages 11, 15 respectively).

Information about -

a) recreational activities participated in

b) the corresponding segment number in which participation occurred

c) whether participation occurred "en route" or "at destination"

d) number of different days on which participation occurred at the destination

was recorded for the entire trip (on pages 13 and 17 respectively). The actual location of destination participation can be determined by cross-tabulating the activity segment numbers (from pages 13, 17)

with the destinations of the same segment numbers as defined on pages 12 and 16 respectively. This will provide the planner with an indication of which activities are done in given geographical areas for both weekend and vacation trips. The segment by segment format also provides the opportunity to apply multivariante statistical techniques to activity and accommodation data to determine the presence or absence of particular "activity/accommodation packages". Before working with detailed data about the last weekend and/or vacation trip, the analyst should become thoroughly familiar with Section VI, pages 27-35, of the Ontario Recreation Survey, Survey Documents. Here specific definitions and rules for recording data are outlined.

"Other" Weekend and Vacation Trips

Respondents who indicated taking more than one weekend or vacation trip ending within the three month recall period were asked to describe -

1) the number of nights away from home
2) main destination
3) accommodation type(s) used
4) top three recreation activities participated in

for up to three "other" weekend and two "other" vacation trips. Consequently, a general description of most weekend trips and virtually all vacation trips will be available for the recall period. The "other" trips questions were included to provide a basis for testing whether the last trip taken yields biased estimates of trip

characteristics. If such is found to be the case, then data from the other trips sections may be used to calculate appropriate secondary or tertiary weights.

It must be remembered that the second part of Qu.21 in both sections C and D refers to total trips other than the one recalled in detail. Consequently, the calculation of total trips taken within the three month recall period must be adjusted for the fact that a trip may or may not have been recalled in detail earlier in the respective sections.

Section B of the questionnaire included questions to determine the total days that respondents had participated in a recreational activity/activity group during the past three months. Corresponding questions were also asked about total participation occurring on weekend and vacation trips. These frequency of participation estimates from Section B should be used to estimate the number and proportion of home-based recreation participation days for all activities and activity groups. The write-up in Section B of this chapter outlined how the location of the last home-based occasion of participation in an activity should be used to partition home-based consumption by geographical area. Information regarding the locations of activity participation from Sections C and D of the questionnaire is to be used to partition the total non-home-based participation estimates from Section B, into consumption zones.

The design of trip related activity questions to achieve the objective stated above was one of the most difficult aspects of the questionnaire development. Nowhere else in the questionnaire was the ever present need to compromise between the requirements for specific and unbiased data on one hand and the respondent's ability and willingness to provide valid and reliable data on the other hand, more striking. Ideally the respondent would have provided a day by day account of all activity participation done while on all trips taken within the recall period. When an activity had been done at more than one location during a day, a rule would have been required by which consumption could be proportionally allocated among the various locations. Only in this way could double counting of participation be eliminated and the definition of non-home-based participation days while on a trip be consistent with the definition used in Section B. The study team decided that asking the number of repetitive questions needed to achieve this objective of consistency in definition would have jeopardized the chances of completing some interviews and reduced the respondent's care and attention in answering subsequent questions for many other interviews.

The compromise which was adopted had the respondent provide detailed activity information for his last weekend and/or vacation trip only. For this trip respondent was asked which recreational activities were done on each trip segment, whether participation occurred en route or at the destination and on how many different days each activity was done at each destination. No attempt was made to determine the location of "en route" participation.

Consequently, non-home-based participation must be partitioned into consumption zones entirely on the basis of data for participation occurring at segment destinations. The user of the data must recognize that such an estimation procedure may potentially cause some bias. The extent of this bias, however, should be small as it appears that the greatest percentage of participation does occur at destinations. It is also believed that bias potential can be substantially reduced by defining reasonably large sized consumption zones. Consumption zones must never be smaller than a county and analysis may show that only areas much larger than counties can be used. Finally, the trips from which the data is derived to make the estimates described above must, themselves, be properly weighted. The exact nature and extent of this weighting will have to be determined through analysis.

It must be realized that the number of non-home-based occasions of participation for an activity estimated from Section B may not, in all cases, agree with a summation of "occasions" estimated from all weekend and vacation trips recorded in Sections C and D. Explanations for such a lack of agreement include -

1) Recall for activity participation while on a trip may be longer than three months if the respondent had started the trip more than three months prior to the date of the interview. The recall for Section B was restricted to exactly three months.

2) Rules for recording responses for trips would legitimately allow an activity to be recorded up to three times on a given day, i.e., at origin of the segment, en route, and at the segment destination. Section B only allows an activity to be included once a day.

3) All participation is recorded at the activity level in the trip sections whereas some activities, e.g., the boating activities, were grouped in the detailed activity section.

Some idea of the possible extent of double counting of participation in the activity section can be determined by comparing separate estimates of non-home-based participation from Section B with data from Sections C and D. Any such comparison is only valid when the following conditions are met:

1) No more than one weekend and/or vacation trip is indicated in Sections C and D respectively

2) All trips recalled must have begun within three months of the interview date

3) Only activities not grouped in Section B can be compared.

The discussion of Section B described a procedure by which estimates of the total frequency of home-based participation for grouped activities, such as hunting, could be expanded into estimates for the individual activities which comprise the group, i.e., big game, small game and waterfowl hunting. Computing corresponding estimates of non-home-based participation for grouped activities is both a difficult and risky task. The main difficulty is that, except for the en route portion of trip segments and a rather limited number of "at destination" cases, it is not possible to determine whether activities in a given group were done on the same or different days. As outlined earlier, it was decided that asking the number of repetitive questions needed to yield such information would have placed an excessive burden on the patience and good will of respondents.

It is possible to develop expansion factors from information found in the Free Time Yesterday Section which can be applied to estimates of the total frequency of non-home-based participation. Such expansion factors would probably be valid for participation on weekend trips. However, the validity of such factors for participation on vacation trips is an unknown. Underestimates could be expected if the assumption is accepted that people participate in fewer recreational activities on the last or second last day of their vacation trips. Using expansion factors derived from Free Time Yesterday vacation data has the further disadvantage of restricting the possible combination of activities that could have been done to only those activities for which opportunities were available. For example, if the respondent had been travelling through an area having many small rivers, yet few large lakes, then it is possible that he could have canoed but not canoed and sailed. This problem makes it difficult to recomment a best method of deriving expansion factors without first undertaking detailed analysis of the data. No matter which expansion procedure is eventually adopted, it is recommended that any attempt to estimate total activity participation (for activity groups in Section B) by consumption zone only be made by first partitioning the total activity groups' participation into the consumption zones and then applying the appropriate total activity participation expansion factors.

Accommodation Information

Sections C and D provide the information required for estimating total annual person nights of overnight accommodation used by Ontarians while on trips in Ontario. Each segment of the last weekend and vacation trip having an Ontario destination includes information about accommodation type used, number of nights stayed and the specific location of the destination. To provide estimates, for example, of total nights stayed in accommodation type by consumption zone, the last trip should be weighted up by the total trips taken within the recall period. As indicated in the discussion of the "other trip" information, analysis may indicate that further weighting of the last trip is required in order to produce unbiased estimates. It may be desirable, for example, to stratify total trips taken by either the total number of nights for the entire trip, or by the main destination, or by a combination of both these factors. In all cases, separate accommodation related estimates should be made for weekend or vacation trips.

SECTION E

FREE TIME ACTIVITIES YESTERDAY

The Free Time Activities Yesterday Section was designed to meet three objectives. The first objective was to provide as unbiased as possible data concerning what people do in their free time as well as the amount of free time they have available. The second objective was to provide data that could be used in conjunction with other sections of the questionnaire to establish or elaborate upon certain relationships. Finally, the data was intended to provide a means of testing the reliability of estimates of frequency of participation recalled over three months in the Activity Section.

Free Time Activities were defined as any activities done by choice. Such an open definition was designed to identify the full range of non-obligatory uses of time.

For the purpose of this section, Free Time Activities were divided into RECREATIONAL ACTIVITIES and LEISURE ACTIVITIES. Recreational Activities were defined as any of the 73 activities defined in Section B, while Leisure Activities referred to all other discretionary uses of time. The above division was made in order to provide data in a format compatible with the requirements of the TORPS prototype model.

The Free Time Activity Section had respondents recall which free time activities they did yesterday (Saturday):

a) from the time the person got up until noon

b) from noon until 6:00 p.m.

c) from 6:00 p.m. until bedtime.

Respondents also estimated total time spent in each of these three time periods. A separate estimate of total time spent doing recreational activities was also requested. Finally, the three time related questions defined in the Activity Section were included. It should be noted that information regarding the date of the interview recorded on the first page of the questionnaire can be used with the three time related questions in this section to determine the exact data recalled by each respondent.

The need for unbiased free time and free time activity data was a major reason for allocating an equal number of interviews to each sub-stratum during each month. With an even distribution of interviews throughout the 12 months, it was possible to have a "day before the interview" recall period without introducing large seasoned biases. This strategy eliminated administrative problems and respondent resistance associated with other alternative data collection methods such as time "diaries".

Every attempt was made to have an equal number of respondents recall each day of the week for each month. However, daily scheduling of interviews within months took place within the constraint of no Sunday interviews. Consequently, twice as many interviews were scheduled to begin on Monday as compared to the days from Tuesday through Saturday. One half of the respondents interviewed on Moday recalled the previous Saturday, while the other half recalled the previous Sunday. Such a compromise did lengthen the recall period for certain respondents. However, it provided the chance of obtaining an equal number of observations for each day of the week.

No interviews were scheduled to commence on Sunday for two main reasons. This procedure avoided inconveniencing or antagonizing potential respondents who believe Sunday is a day of rest. Attempting to interview such individuals would not only be disrespectful but it also leads to higher non-response rates, both in refusals and not-at-homes. A second benefit of replacing Sunday interviewing with a two-day recall to Saturday was that a better representation of what people do on weekend trips could be achieved. If Sunday interviewing had taken place with only one-day recall, then the Saturday of the typical weekend trip would almost never have been recalled. As the respondent would not have been home on Sunday to be interviewed.

Attempts were made to evenly distribute completed interviews throughout the weeks of each month. This objective was difficult to achieve since interviewers could not determine in advance how many contacts would be required to complete an interview. The practical solution for ensuring that sufficient time would be available for completing the monthly allocation of interviews, was to make more than one half of the original contacts before the middle of each month.

The Free Time Activities Yesterday Section should provide good estimates of activities done and time spent during home-based days. However, any analyses of home-based days should first determine if the days of the weeks within each month are represented in the sample in their true proportions. When the resulting distributions

are significantly different than the expected distributions, then weighting factors should be calculated and applied to correct for discrepancies. Any analyses must also recognize that some time periods during particular weekend trips had no chance of being recalled. For example, no chance existed for recalling the Friday evening and ending on Sunday evening. Consequently, certain assumptions are required before data about free time use on weekend trip days can be interpreted and it is the responsibility of the analyst to clearly state any such assumptions.

The Free Time Activities Section will not yield unbiased data for non home-based vacation days. According to the questionnaire instructions, only the last or second last day of any vacation trips could have been recalled. Free time available on vacation trips was not collected since the pilot study indicated that when estimates of time were recalled for a period up to three months, there were extremely highly associated standard deviations, often three or four times the mean.

The Free Time Activities Yesterday data can be used in conjunction with data from other sections of the questionnaire to establish or elaborate upon a number of relationships associated with home-based recreation. One such use has been described in the detailed activity section where it was proposed that free time activity data could be used to estimate the number of occasions of recreation for activities found in activity groupings. Free time activity data can also be used to determine which activities without

restriction are done in combination. Here the application of cluster analysis to isolate typical daily activity packages is recommended.

Another possible use of free time activity data would be to estimate the proportion of home-based days on which any recreational activity is done. This proportion could then be multiplied by the appropriate population totals and number of home-based days to estimate what is often referred to as "user days of recreation".

Free time activity data can also be used to provide time-related information for the "other activities" (Section B, page 10). None of the three time-related questions were asked for these activities.

The free time activity data can also be used to evaluate the reliability of the frequency of participation data recalled over three months in the activity section. The total frequency of participation in an activity or activity group can be estimated by multiplying the probability of participation in an activity for a home-based day by a corresponding population total by a corresponding number of home-based days during a given time period. Comparisons should be limited to total frequency of home-based participation over a 12 month period for defined groups of respondents, for example, an age/sex group. It is necessary to first eliminate any multiple counting in the free time section before a comparison is attempted. Multiple counting could occur if an activity was done during more than one of the three time periods and/or more than one activity within a grouping was done on the day recalled.

PREFERENCE

More attention was paid to developing the preference section of the questionnaire than any other single section. A major component of the background work was done through a research contract with Drs. P. Witt and D. Bishop. Both are recreation psychologists with considerable research experience with time budgets, activity packages and recreation preferences. The Witt-Bishop research dealt with the relationships among a person's:

a) present recreation participation, both in terms of incidence and frequency of participation;

b) preferred activities and frequency of participation in those activities;

c) perceived constraints to desired participation;

d) probable patterns of activity substitution.

A major part of the final research report dealt with the problem of how to evaluate stated activity preferences. Witt-Bishop suggested that stated preferences can be classified into wishes or dreams on the one hand and into true wants on the other hand according to a number of factors. The factors include the individual's:

1) experience with the activity,

2) relative opportunity - necessary facilities and/or resources being available,

3) socio-economic status,

4) skills in that activity,

5) interest in that activity,

6) habitual behaviour in that activity,

7) willingness to spend the extra required time or money,

8) personality.

Activity Preference

Activity preference questions were designed so that many of the above factors could be included in analysis. The activity-preference section divided activities into three sets according to the respondent's experience and habitual behaviour in these activities. The three sets included:

1) Activities presently being participated in
2) Former activities not now being participated in
3) New activities.

Each questionnaire included a large number of socio-economic characteristics for both the respondent and his household. Each respondent's opportunity can be determined from Ontario Recreation Supply Inventory data. Unfortunately, the length of the questionnaire excluded the possibility of asking the number of questions necessary to ~~determine~~ PERSONALITY the respondent's personality. The remainder of the variables on the Witt-Bishop list were excluded because they were believed to be either highly correlated with OTHER variables ~~already~~ being collected or else (there was a problem associated with obtaining valid //ism data.)

For each activity in which more participation was desired, respondents were asked (through Question 7) to list, in rank order, what they believed to be their top three constraints. The categories listed on the corresponding response-categories card were developed from typical responses to similar questions used in the ORRRC Study and the Ontario Recreation Pilot Survey. All constraints were made as mutually

exclusive of ~~each other~~ as possible. Certain constraints were constructed to correspond to some specific types of government action which could be taken to reduce or eliminate the constraint.

When interpreting responses to the constraint questions, it must be realized that the respondent may (improperly) perceive the presence of particular constraints. Examples could include a person perceiving an activity as being "too dangerous" yet not having any experience with the activity. Another example could include a person perceiving, on the basis of past experience, that facilities were too crowded while, in reality, this was no longer the case.

The important principle to remember here is that a perceived constraint has reality to its beholder and as a result it may influence his participation or lack of participation. It is useful to identify those cases where an improper perception of the constraints results from the respondent's lack of up-to-date information. In these circumstances an information programme can be as effective as a more costly construction programme. For example, it is possible that some of the tremendous weekend pressure on ski hills could be redirected toward the weekdays by ensuring that skiers are aware that the areas are open and there are fewer line-ups on those days.

A question (Qu.8) about the preferred number of (more) days of participation was asked for each activity that the respondent wanted to do more frequently or else wanted to engage in again. Responses to these questions must never be used to (independently) estimate the latent demand for activities! Responses only become

meaningful when interpreted in light of the total participation pattern, socio-economic characteristics, supply of opportunities and constraints faced by groups of respondents. Desired changes in participation of individuals must be related to probable changes in the circumstances faced by these individuals.

Following the recommendations in the Witt-Bishop Report, the question about desired participation levels was not asked for those activities in which the respondent had not yet participated. Here it was believed that resulting responses would have been largely invalid and unreliable.

A question (Qu.9) was also asked about the number of extra days a respondent would like to participate in present activities if his primary constraint was eliminated. By comparing the response to this question with the response to the unconstrained desired additional participation question, it should be possible to crudely estimate the effective magnitude of various constraints that groups of respondents face in respect to individual activities. The above question was restricted to present activities only, because of its highly hypothetical nature.

Weekend and Vacation Trip Preference

Questions about destinations, activities, accommodation types and reasons for choice of accommodation type were asked for preferred weekend and vacation trips. Responses to these questions are subjective and, like the activity preference data, only become

meaningful when interpreted along with actual observed behaviour. This series of questions does, however, provide a wealth of information which can be used to identify and segment potential tourist markets. By combining the responses to destination, activity and accommodation (questions), the tourist-marketing specialists can determine which type of weekend and vacation packages have the greatest appeal. Such combined data should be particularly useful in determining the feasibility of proposed tourism development schemes. The managers of various accommodation (types) can use this data to determine the location and characteristics of their greatest potential markets and then direct their advertisements towards these people.